

Influence of Igneous Rocks on Oil and Gas Accumulation

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Igneous rocks are widely distributed in the world and have a huge impact on oil and gas exploration.

In order to discover the relationship between igneous rocks and oil and gas accumulation, starting from the whole process of oil and gas accumulation, the influence of igneous rocks on oil and gas generation, reservoir development, seal conditions, trap formation, oil and gas migration, and oil and gas reservoir preservation were analyzed, and the patterns were summarized.

The study results show that the igneous rock itself is rich in minerals, which provides material conditions for the reproduction of hydrocarbon-generating rocks, increases the geothermal gradient and accelerates the hydrocarbon-generating action, the migration of the metal elements carried can improve the hydrocarbon-generating transformation efficiency of the source rock. Igneous rocks have positive and negative effects on the reservoir. It has a constructive role as reservoir, transforming reservoir and changing paleomorphology, which is beneficial to carbonate rock deposition. It has the destructive effect of baking the reservoir to make it dense and occupying the reservoir space. Tight igneous rocks can serve as effective seals and fluid segmentation layers. During the spilling and eruption of magma along the volcanic channel, various types of structures can be formed, which enriches the types of traps. The thermodynamic effect on the surrounding rock during the igneous eruption process produces a large number of faults and fractures, which is conducive to the migration of oil and gas. Late igneous rocks have destructive effects on early oil and gas reservoirs.

Oil and gas accumulation in igneous rock-bearing basins is closely related to igneous rocks, and the research results can provide new ideas for oil and gas exploration from the perspective of igneous rocks.